

SAN FRANCISCO FORECAST DISTRICT

Pacific States Forecast District.—February opened with the entire northeastern Pacific Ocean dominated by the Aleutian low pressure system, which was pivoted near the Island of Unalaska with major axis swinging between a south and a southeastward inclination. On the first day of the month this axis was pointing toward the southeast, a characteristic position for the propagation of disturbed conditions along and near the lower Pacific coast. Two lows had already developed within the southeastern extension of this system and passed inland over California during the closing days of January, and a third one appeared in the same general area on the evening of February 2. It was evident that it would be the most severe of the three, and southeast storm warnings were displayed along the northern California coast that evening, and extended the following day to cover the entire coast from the Straits of Juan de Fuca to San Diego. Very high velocities followed, gales of from 72 miles per hour at Point Arguello to 80 at Point Reyes and 72 at the mouth of the Columbia River being recorded during the ensuing day and night. The storm center moved northward on the 3d, and warnings were allowed to expire on the southern California coast but were continued at all stations from Point Reyes northward. Strong winds prevailed over this section with gales on the Oregon-Washington coast on the 3d and 4th.

All warnings were allowed to expire on the California coast on the evening of the 4th, but were raised again the following afternoon from Mendocino to Eureka, and continued at other points to the northward, due to the development of a new disturbance in the low pressure system over the ocean. This storm passed inland over British Columbia during the following night, attended by gales on the coasts of Oregon and Washington. The following day warnings at all points were taken down, after having been displayed continuously on the Oregon-Washington coast for 90 hours.

A high-pressure phase followed but was of brief duration. The barometer began to fall soon afterward in the Gulf of Alaska, and on the evening of the 8th southwest warnings were displayed on the Washington coast and extended the morning after to cover the Oregon coast. Gales followed on the 9th.

On the latter date a marked change took place in oceanic pressure distribution. The barometer, which for a considerable period had been low over all that part of the middle Pacific Ocean which was under observation began to rise, and on the 10th a high pressure area was charted which extended from the western Aleutian Islands south and southeastward to tropical latitudes. An acceleration in the rate of storm movement to the eastward was to be expected, and a disturbance noted on the morning of the 10th centered in approximately latitude 45° N., and longitude 150° W., appeared 24 hours later in latitude 40° N., and longitude 128° W., calling for warnings all along the California coast. The rising pressure in the rear of this disturbance, however, did not prove to be continuous, and on the 12th a general fall was observable over the ocean beyond the 150th meridian. This was reflected in retarded movement of the storm off the California coast. It failed to progress inland but remained nearly stationary, its center only a short distance west of Cape Mendocino. Stormy weather with strong southerly winds and gales consequently prevailed along the central and southern coasts of California until the 13th, when the disturbance began to dissipate and all warnings were lowered.

On the night of the 16th a new disturbance developed in the Gulf of Alaska and warnings were displayed the following morning along the Oregon-Washington coast, and on the northern California coast a day later. Gales followed the display of these warnings on the 18th and 19th, subsiding on the 19th.

The general pressure situation changed radically on the 20th. A large high pressure area occupied the ocean between California and the Hawaiian Islands, and began to push in upon the California coast. It marked a cessation of general rains in that State, and except for light amounts in the extreme north portion no further precipitation occurred in California during February. Unsettled weather continued in the North Pacific States, however, due to the slow advance of the HIGH and the generation of vortices on its northern periphery. Two of these passed successively on the 21st and 23d from the upper Gulf of Alaska along the track of February Lows of the Alberta type, attended by stormy weather in the Pacific Northwest, and calling for south-warnings at most ports from the Columbia River north.

By the 25th the high pressure area referred to had moved far enough north to preclude the invasion of this district by further disturbances, and generally fair and settled weather prevailed in all sections until the close of the month.

There was a total absence of damaging frosts. General warnings were issued on occasions, but the frosts that followed were local in character and devoid of serious effects.—*Thomas R. Reed.*

627.41 (73)

RIVERS AND FLOODS

By H. C. FRANKENFIELD

The great ice gorge in the upper Allegheny River of Pennsylvania continued throughout the month. Under the influence of moderately heavy rains and melting snows on February 25 and 26, the ice moved out of Tionesta and French creeks, tributaries of the Allegheny River above Franklin, Pa., during the afternoon and evening of February 26, and also in the main river several miles above Warren, Pa. It was not long before the small channels in the large gorge between Franklin and Brandon, Pa., 15 miles, became jammed with ice; the water and floating ice backed up over the low sections of Franklin and the top of the ice at the Franklin gage was at the height of 24 feet, or 9 feet above the flood stage. The actual water stage is unknown, but it is estimated that the floating ice was at least 4 or 5 feet in depth. By the morning of February 27 the top of the ice at Franklin stood at 22.1 feet on the gage and the river was full of ice from Tionesta Creek to Brandon, a distance of 41 miles. From Tionesta Creek to Warren, a distance of 25 miles, the river was practically free of ice, but from Kinzua Creek, 8 miles above Warren, another gorge extended northward for about 18 miles. It was not until March 6 that the ice surface at Franklin fell below 15 feet on the gage, with an estimated water depth of not more than 3 feet.

The rise on February 26 resulted in loss and damage amounting to about \$40,000. Efforts were made to open a channel with thermite and dynamite, but without much success, and the ice will probably remain until it moves out naturally.

While floods occurred quite generally over the southeastern portions of the country, they were uniformly moderate. (See table.) The flood in the Santee of South Carolina, which began on January 21, continued until February 22. After an interval of one week another